ABSTRACT

This invention provides an asymmetrically patterned magnetic memory storage device. In a particular embodiment at least one magnetic memory cell is provided. Each magnetic memory cell provides at least one ferromagnetic data layer of a first size, the data layer characterized by an alterable orientation of magnetization, an intermediate layer in contact with the data layer and at least one ferromagnetic reference layer of a second size, the reference layer characterized by a reference magnetic field. The reference layer is in contact with the intermediate layer, opposite from and asymmetric to the data layer. The magnetic memory cell is characterized as having only one-end involvement. More specifically, the asymmetric alignment provides that only one set of magnetic poles are in substantial vertical alignment, and as such subject to the strong influence of one another.